

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 January 2005 (06.01.2005)

PCT

(10) International Publication Number
WO 2005/001979 A3

(51) International Patent Classification⁷: **H01M 8/10**,
C07D 235/10, 271/10, C07C 311/03, C08F 28/02, H01M
8/02

(21) International Application Number:
PCT/US2004/020703

(22) International Filing Date: 25 June 2004 (25.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/482,927 27 June 2003 (27.06.2003) US

(71) Applicant (for all designated States except US): **E.I. DUPONT DE NEMOURS AND COMPANY** [US/US];
1007 Market Street, Wilmington, DE 19898 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TEASLEY, Mark**,
F. [US/US]; 118 Eden Road, Landenberg, PA 19350
(US). **YANG, Zhen-Yu** [US/US]; 177 Thompson Drive,
Hockessin, DE 19707 (US).

(74) Agent: **FICKES, Daphne, P.**; E. I. Du Pont De Nemours
and Company, Legal Patent Records Center, 4417 Lan-
caster Pike, Wilmington, DE 19805 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

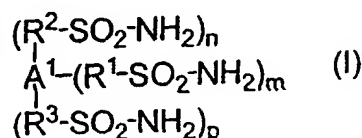
Published:

— with international search report

(88) Date of publication of the international search report:
12 May 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: FLUORINATED SULFONAMIDE COMPOUNDS AND POLYMER ELECTROLYTE MEMBRANES PREPARED THEREFROM FOR USE IN ELECTROCHEMICAL CELLS



(57) Abstract: A fluorinated sulfonamide small molecule having the general structure (Formula I) wherein m, n and p are 0 to 3, with the proviso that m + n + p is equal to 1 to 4; A¹ is an aromatic heterocyclic group, with the proviso that carbon atoms of the heterocyclic ring are fully substituted by fluorinated sulfonamide groups; and R¹, R², and R³ are linear or branched perfluoroalkylene groups, optionally containing oxygen, chlorine, bromine, or iodine atoms. Polymers and small molecules useful in making polymer electrode membranes, membrane electrode assemblies, and electrochemical cells; such as fuel cells, are also described.



WO 2005/001979 A3